

Date: October 2, 2019

In 2019, in response to concerns of a cancer cluster of young women with breast cancer living in the vicinity of Rocky Flats, the Colorado Department of Public Health and Environment's Colorado Central Cancer Registry analyzed breast cancer incidence¹ in young women in the neighborhoods around Rocky Flats.

In brief, **no increased incidence of breast cancer was found in young women in communities around Rocky Flats.** On the contrary, cancer data showed the number of breast cancers diagnosed in young women living in this area to be within or below the expected range.

Unfortunately, cancer is a common illness and can be life-threatening. About 1 in 3 Coloradans will be diagnosed with cancer at some point in their lives. Cancer is not one disease, but many types of disease, with many different causes. Often, it is not possible to identify the specific cause of an individual person's cancer, but risk factors include: poor diet, lack of physical activity, being overweight, alcohol use, smoking and/or tobacco use, some environmental exposures like specific types of chemicals and radon gas, sunlight, a family history of cancer, certain viruses and bacteria, hormones and aging.

To investigate a report of a cancer cluster, we need to understand whether there are more cancer cases diagnosed in the area of the suspected cluster than in other parts of the state. The Cancer Registry maintains the statewide database of all cancers diagnosed in Colorado residents (with a couple exceptions, like certain forms of basal skin cancer). All Colorado hospitals, pathology laboratories, other state cancer registries, death certificates and physicians are required by law to report medically-confirmed cancer data to the Colorado Department of Public Health and Environment². About 25,000 invasive cancer cases are reported each year.

Cancer Registry data are used to study cancer patterns, including whether there is a "cancer cluster" or more cancer cases in a specific area than what we typically see in Colorado.

¹ Cancer incidence means the number of new cases diagnosed by medical professionals.

² The registry is mandated by Colorado law [C.R.S. 25-1-107 (1) (z)] and by Colorado Board of Health regulation [6 CCR 1009-3]. All individual patient, physician, and hospital information is confidential as required by Colorado law [C.R.S. 25-1-122 (4)].

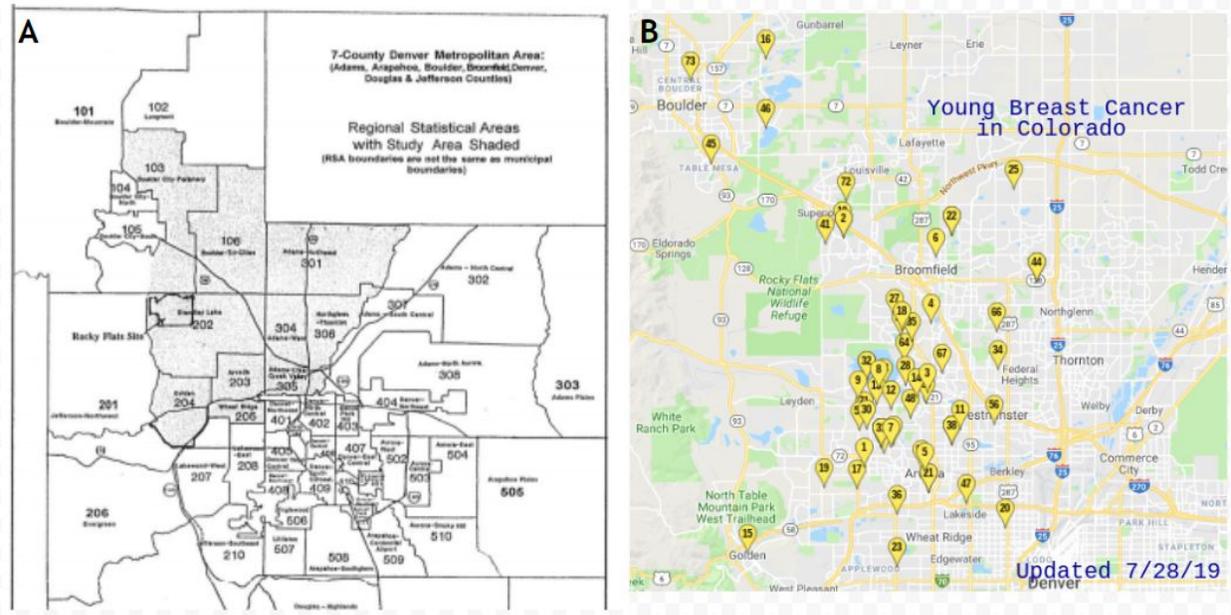


Figure A. Study area used for cancer incidence studies near Rocky Flats.
Figure B. Map of young breast cancer cases self-reported to a private citizen. This map was provided to CDPHE by the president of the Rocky Flats Downwinders.

To investigate the reported cancer cluster, we examined Cancer Registry breast cancer data for the area in the vicinity of Rocky Flats. This is the same study area used in previous reports produced by the Cancer Registry in 1998, 2016 and 2017 (gray area in Figure A), which closely aligns with a map of self-reported young breast cancer cases (Figure B). We compared the incidence of breast cancer in young women (under age 45) in the study area to incidence in the same age group in the rest of the Denver Metro area. We found that breast cancer incidence in young women in the study area was not higher in the areas surrounding Rocky Flats than incidence rates in this age group in the remainder of the Denver Metro area. The Cancer Registry data showed no increased incidence of breast cancer in young women in this area.

For the entire study area, the Cancer Registry found that 1,448 breast cancers were diagnosed in women under age 45 from 1990 to 2014 compared to 1,551 breast cancers that would have been expected on average based on incidence rates in the remainder of the Denver metro area. The resulting observed/expected ratio of 0.93 is statistically lower than expected. Put another way, breast cancer diagnoses in young women are less common in the study area near Rocky Flats than would be expected in this area.

Further, none of the ten community areas (Golden, Standley Lake, Wheat Ridge, Boulder Periphery, Boulder Tri-Cities, Arvada, etc) in this same area had observed/expected ratios for young breast cancer that were statistically high. Each of the ten community areas had ratios that were within expected statistical variation. Breast cancer rates in young women in these areas were no higher than rates of young women in the rest of the Metro Denver area.

For example, we identified 161 cases of young breast cancer that were diagnosed in Arvada between 1990 and 2014, but based on Denver Metro data, we would have expected 175 cases. (a ratio of 0.92). When translated into yearly averages over the 25 years, 6 cases were diagnosed per year compared to about 7 cases per year that would be expected. Young breast cancer diagnoses in Arvada were less frequent and below the average breast cancer rate for the rest of the Denver Metro area.

Finally, it should be noted that breast cancers in women under age 45 account for about 13% of all breast cancers in the United States. From 1990 through 2014, both in Colorado and communities in the vicinity of Rocky Flats, young women had the overall same percentage as the U.S., i.e., 13% of breast cancers occurred in women under age 45. The data did not show a young woman's breast cancer "cluster" in any of these Rocky Flats area communities.